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Center for Ground Vehicle Development and Integration

Overview - 22 April 2011

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Center for Ground Vehicle Development & Integration



Mission:

To develop, fabricate and integrate advanced solutions into current and future ground systems

Vision:

The best choice for ground systems development and integration

Description:

- Leverages RDECOM and DoD capabilities in a repeatable process to apply rigorous systems engineering to ground systems integration
- Provides customer partners a single entry point for cost, schedule, performance and risk management of system integration projects

Notable Recent Accomplishments:

- MRAP Capability Insertion for Caiman, MaxxPro, RG-31 and RG-33 Systems
- Command and Control on the Move (Stryker and MRAP Integrations)
- Robotic Deployment System for Route Clearance Vehicle
- MRAP Egress Trainer
- M-ATV Vision Enhancement

CGVDI Customers(partial):

- JPO MRAP
- PM WIN-T
- PM LAV
- RS JPO
- PM-AMS
- TARDEC FPT, GVS, GVPM



System Architecture



System Design & Analysis



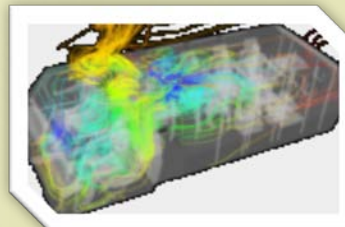
Engineering Design



Physical Simulation



Vehicle Integration



Modeling



C4 Integration Bench



Prototype Fabrication



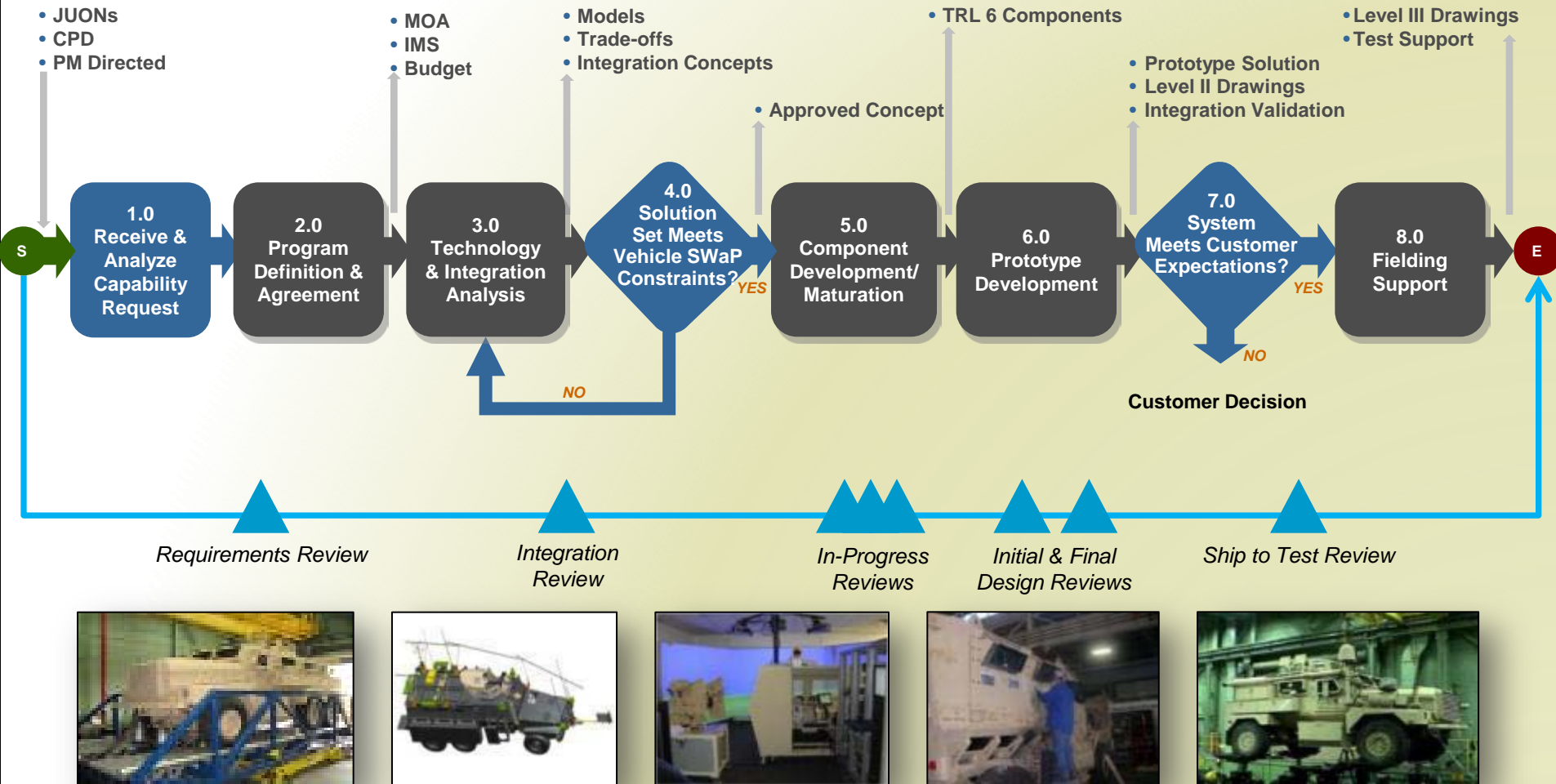
User Jury

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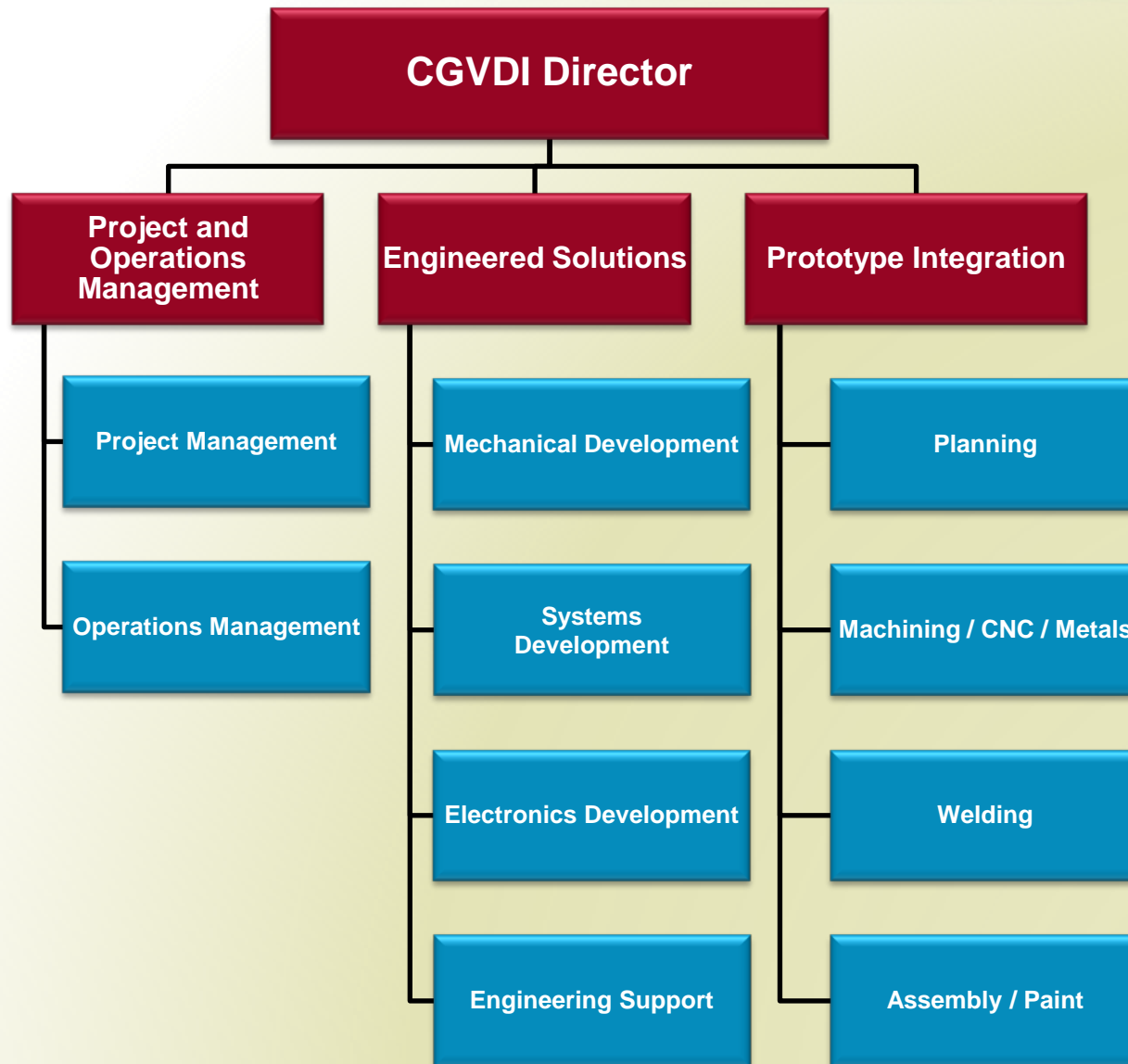
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System Integration Process



CGVDI Organizational Chart



Project Management

Operations Management

CGVDI serves as a single entry point to RDECOM for ground vehicle system integration projects, as well as for managing cost, schedule, performance and risk.



Bi-Weekly Project Review



Master Integrated Schedule



Risk Review Board

Responsibilities

- Leverage TARDEC, RDECOM and DoD resources to perform robust system development and integration
- Develop project requirements and formalize customer agreements through SOWs, MOA and MOUs
- Manage project cost, schedule, performance and risk from project requirements through system development to technical data package delivery
- Coordinate with other functional areas, communicate project status, and conduct project/program reviews with customer



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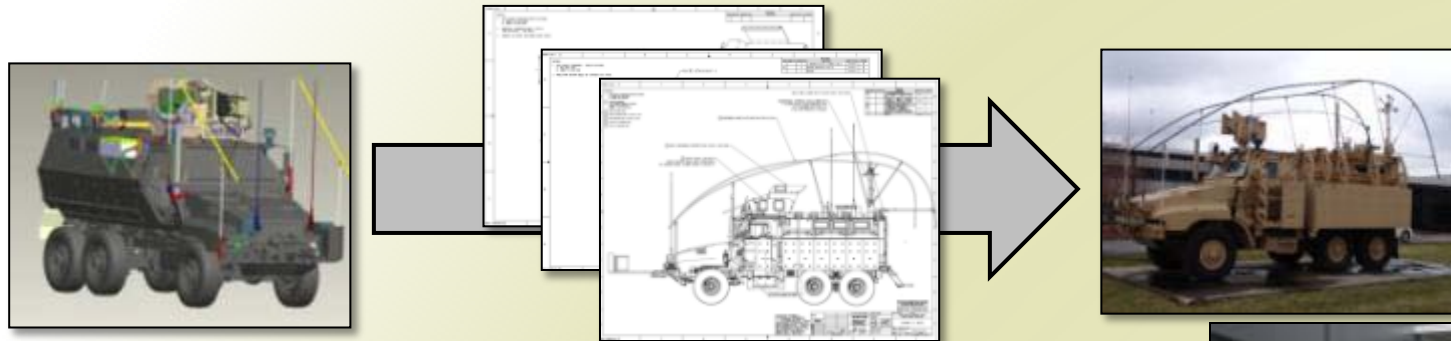
Mechanical
Development

Systems
Development

Electronics
Development

Engineering
Support

CGVDI's experienced ground vehicle design engineers have extensive expertise in developing sustainable solutions for all aspects of the vehicle, from individual components to complete structures and systems.



Competencies

- Pro/E CAD modeling, finite element analysis and mechanical failure analysis
- Design, develop and integrate electronic circuits, wiring harnesses and systems for all vehicle platforms
- Electrical system testing and diagnostics
- Reverse engineering analysis and design
- Development of Technical Data Packages including engineering drawings, bill of materials and user manuals



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Planning

Machining /
CNC/ Metals

Welding

Assembly /
Paint

CGVDI's diverse Prototype Integration workforce has critical competencies including ballistic welding, modern machining, CARC painting and expertise on all fielded vehicles.



Integration Assembly Area

- 22,500-square feet of assembly area
- 50-foot-high bay
- 15 fully customizable assembly bays
- 16-inch reinforced concrete flooring
- 50-ton rail crane with 10-ton auxiliary
- 10-ton rail crane
- Capability to work on 70-ton vehicles

Responsibilities

- Fabricate prototypes and integrate advanced technology into current and future ground systems
- Laser and waterjet cutting machines, CNC machining and forming and ballistic-certified welding
- Capability to work with armor steels, composites, ceramics, and all other common materials from raw stock to fully painted product
- Package and ship individual components and complete kits



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Research, Development and Engineering Command Prototype Integration Facilities



Army Depots



Red River Army Depot



Letterkenny Army Depot



Blue Grass Army Depot



Rock Island Arsenal



Local Industry

•Deburring/Metal Cleaning

•Waterjet Supplies

•Hardware/Tooling

•Welding

•Machining

•Welding/Laser Gas Supplies

•Packaging

•Painting

•Raw Materials

•Sheet Metal Fabrication

•Total Integration Shops



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Saving Soldier's Lives



HMMWV Egress Assistance Trainer (HEAT)

Reduce fatalities in rollover events by safely training soldiers on the proper procedure to exit a rolled-over HMMWV



Electronic Tip-down Antenna System (ETAS)

Allows Soldiers to simultaneously maneuver numerous antennas into a retracted or normal position to access areas with lower clearance levels



Battery Powered Motorized Traversing Unit (BPMTU)

Powered traversing capability for HMMWV turrets, allowing Soldier to use joystick to easily rotate the gunner and to fight from behind armor and ballistic glass



Construction Equipment Add-on-Armor

IHMEE HYEX ATLAS ATEC

Armor kits for various construction vehicle to protect engineering crews who are working in potentially dangerous areas



HMMWV Armor Survivability Kits (ASK)

Provides a field installable, expedient armor solution for HMMWV side ballistic threats

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Saving Soldier's Lives



MRAP Expedient Armor Program (MEAP)

Provide protection at the medium threat level (minimum) for MRAP I vehicles



Universal Combat Lock Tool (UCLT)

Multi-function unit that allows the user to have one tool that will unlock any MRAP variant, with or without armor solutions



MRAP Egress Trainer (MET)

Train Soldiers on how to safely exit MRAP in the event of a rollover



Overhead Wire Mitigation (OWM)

Allows MRAP vehicles to avoid pulling down low hanging lines, and to prevent contact with high-voltage lines



Self Protective Adaptive Roller Kit (SPARK)

Provides additional stand-off to the vehicle and crew against pressure activated or Victim Operated Improvised Explosive Devices

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